NOTICE OF PROPOSED RULEMAKING
California Code of Regulations
Title21, Public Works
Department of Transportation

TO ALL INTERESTED PERSONS:

The California Department of Transportation ("Department"), pursuant to authority granted by Streets and Highways Code section 27565, proposes to amend the California Code of Regulations, Title 21, Division 2, Chapter 16, concerning Compatibility Specifications for Automatic Vehicle Identification Equipment used for toll collection after considering all comments, objections, and recommendations regarding the proposed action. Following the public comment period and public hearing, the proposal may be adopted substantially as set forth without further notice.

PUBLIC HEARING

Date and Time:	February 16, 2017 – 9:00 a.m. to 3:00 p.m.
Place:	Board Room - 1st Floor Bay Area Metro Center 375 Beale Street San Francisco, CA 94105
Purpose:	To receive comments about this action.

The Department has scheduled a public hearing on this proposed action.

WRITTEN COMMENT PERIOD

Any interested person, or his or her authorized representative, may submit written comments relevant to the proposed regulation action to the Department. The written comment period closes at **5:00 pm on February 16, 2017.** To be considered by the Department, comments must be submitted to and received by the Department of Transportation, Traffic Operations. Attention: Steve Hancock, 1120 N Street, MS-36, Sacramento, California 95814; by fax at (916) 653-6080; or by e-mail with a subject line of "Title 21 Public Comment" at Title.21.Changes@dot.ca.gov before the close of the comment period.

CONTACT PERSONS

Please direct any inquiries regarding this action to: Steve Hancock at (916) 654-6007 or by e-mail at Title.21.Changes@dot.ca.gov.

The backup contract person for these inquiries is: Joe Rouse at (916) 654-6448 or by e-mail at Title.21.Changes@dot.ca.gov.

Questions regarding the substance of the proposed regulatory action should be directed to:

Department of Transportation, **Traffic Operations. Attention: Steve Hancock, 1120 N Street, MS-36,** Sacramento, California 95814

AUTHORITY

Streets and Highways Code section 27565 authorizes the Department to adopt the proposed regulatory actions concerning Compatibility Specifications for Automatic Vehicle Identification.

REFERENCE

Streets and Highways Code section 27564 provides that toll facilities shall adopt and promulgate compatible automatic vehicle identification systems.

INFORMATIVE DIGEST/POLICY STATEMENT OVERVIEW

There are currently 20 toll facilities operating in California. These include eight toll bridges, five toll roads, and seven high-occupancy/toll lanes. The number of toll facilities is expected to nearly double in the next 10 to 15 years. These facilities are operated, or will be operated, by 11 different entities.

All toll facilities in California utilize electronic toll collection (ETC). Some facilities, only use ETC while others use both ETC and traditional cash collection. An ETC system uses automatic vehicle identification (AVI); a reader is placed at the toll collection point and communicates with a transponder in a vehicle as it passes through that point. The process for exchanging information between the reader and the transponder in an AVI system is known as a protocol.

Senate Bill 1523 (Chapter 1080, Statutes of 1990), mandated that the California Department of Transportation (Caltrans) work with the State's toll facility operators to develop an AVI protocol for ETC systems. The bill required that the protocol would allow for one transponder to be used on any toll facility in California, a concept known as interoperability. The bill also required that the protocol had to be an open standard, meaning that it be made publicly available so that multiple manufacturers and vendors can have an opportunity to develop and supply ETC equipment. The AVI protocol used in California was adopted in 1992 and published in Chapter 16 of Title 21 of the California Code of Regulations. It is known as "Title 21". It is one of several protocols used for ETC in the United States.

There are currently approximately 4.5 million active Title 21 protocol transponders in California. The toll facility operators bear the full costs of purchasing and distributing transponders for use

by motorists. These costs are not borne by the users; when establishing an ETC account they are only required to prepay tolls, replenish the account, as needed, and pay any account maintenance fees. Transponder purchases make up a substantial portion of these agencies' operating expenditures.

In recent years, the state's toll facility operators have discussed the idea of transitioning away from the Title 21 protocol. The primary reason for this change is to reduce costs. The Title 21 protocol is used primarily in California and British Columbia. Due to the small market demand for Title 21 protocol readers and transponders, there are only two vendors that supply them. This limits competition and results in increased procurement costs. The functional specifications of the Title 21 protocol also make the transponders more expensive. The transponders, which require a battery, are a hard plastic case that mounts on a vehicle windshield using Velcro strips. The transponders may also be equipped with a switch for vehicle occupancy declaration for use on high-occupancy/toll lanes. The costs of Title 21 transponders is, on average, about $15 for one without the switch and $20 for one with a switch.

In the spring of 2014, the state's toll facility operators began to formally examine the different protocols used for ETC in the United States to determine if one would work best for California. A protocol known as 6C quickly became a leading choice. The 6C protocol is an open standard protocol based on a system that is used by the retail and shipping industries to track objects in supply chains. The 6C protocol is currently used for ETC in six other states (Washington, Utah, Colorado, Georgia, Michigan, and Alabama) and British Columbia.

The 6C protocol was shown to have several benefits that made it attractive. First, the transponders are less expensive than Title 21 protocol transponders. They do not require a battery to operate, so they can be used in a variety of formats, such as stickers. They are also available with occupancy declaration switches. Overall cost savings compared to Title 21 transponders have been estimated to be as much as 90 percent. 6C sticker tags cost approximately $1, on average, while hard case tags (which would be used for switchable tags) are estimated to cost, on average, about $10. Furthermore, because the 6C protocol is more widely used, there are multiple vendors who offer 6C protocol equipment. With California's potential market size, other vendors have expressed interest in entering the tolling market, including one company already based in California. This could drive procurement costs down further. The other protocols in use for tolling in the United States did not provide the cost savings advantages that 6C does because there are a limited number of manufacturers or because they use batteries like Title 21 transponders and are more expensive than 6C. One of them is proprietary and therefore ineligible for use in California.

Given these potential benefits, the state's toll facility operators determined that the 6C protocol would be the best option for California and in April 2015 they requested that Caltrans begin the process of modifying Title 21, Chapter 16 of the California Code of Regulations to adopt the 6C protocol. Caltrans proposes to amend this chapter to define the 6C protocol as the AVI protocol used for ETC in California effective January 1, 2019. It also establishes a sunset date of January 1, 2024 for the Title 21 protocol. This five-year overlap will give the toll facility operators the necessary time to eliminate their existing inventory of Title 21 transponders. They are given the option of working with Caltrans to move up the sunset date if they so choose.

Caltrans has determined that this change could reduce toll agency expenditures by as much as $20 million annually. The resultant savings could be used by the toll agencies to help pay down any indebtedness they may have incurred to develop their facilities. They could also be reinvested into desired or needed improvements on the facilities or in the transportation corridors where they are located, which would result in safer, more efficient travel for the public.

After conducting an evaluation on any other regulations on this area, Caltrans has determined that these are the only regulations concerning the state's automated vehicle identification equipment and protocol used for electronic toll collection. Therefore, the proposed regulations are neither inconsistent nor incompatible with existing state regulations.

DISCLOSURES REGARDING THE PROPOSED ACTION

The Department has made the following initial determinations:

Mandate on local agencies and school districts: None

Cost or savings to any state agency: None

Cost to any local agency or school district which must be reimbursed in accordance with Government Code sections 17500 through 17630: None

Other non-discretionary cost or savings imposed on local agencies: None

Cost or savings in federal funding to state: None

Significant, statewide adverse economic impact directly affecting business including the ability of California businesses to complete with businesses in other states: None

Cost impact on private person(s) or businesses: The Department is not aware of any cost impacts on private person(s) or businesses that would necessarily incur in reasonable compliance with the proposed regulatory action.

Significant effect on housing costs: None

Small Business Determination

This regulation will not directly affect small businesses, as financial transactions to procure transponders are between toll agencies and corporations. Thus, there are no direct financial transactions with small businesses. However, positive "secondary" impacts to small businesses may occur if business or employment gains occur from increased construction activity due to the reinvestment of transponder procurement savings into the transportation infrastructure.

SUMMARY OF STANDARDIZED REGULATORY IMPACT ASSESSMENT (SRIA)

(A) The creation or elimination of jobs within the state.

The implementation of this regulation will have a positive impact on California's employment, as a portion of 6C transponders are currently manufactured within California and an increase in demand for this technology may spur the need for additional labor. Moreover, the greatest potential job creation comes from financially reinvesting in the transportation network, leading to additional jobs in construction and maintenance. Currently, T21 transponders are manufactured outside of California; therefore, this regulation would not eliminate jobs.

(B) The creation of new businesses or the elimination of existing businesses within the state.

This regulation will not lead to the direct creation or elimination of businesses within the state. Two T21 and three 6c manufacturers are located outside of California. One 6C manufacturer exists in California currently, but this regulation is not projected to result in current 6C companies relocating to the state. Indirectly, this regulation has the potential to create new businesses within California through the reinvestment of savings into the transportation network, resulting in an increase demand for construction labor.

(C) The competitive advantages or disadvantages for businesses currently doing business within the state.

This regulation potentially creates an indirect competitive advantage for businesses affected by the reallocation of transponder savings for infrastructure improvements, as better maintained highways can lead to increases in business productivity through travel efficiency gains for regions that rely on the affected transportation network surrounding the toll facility. Thus, these gains could attract and retain businesses to a region.

(D) The increase or decrease of investment in the state.

The implementation of this regulation would lead to an increase of investment into the state's transportation infrastructure and result in an improvement to travel quality on affected highways such as higher throughput, larger buyer-supplier market access, and lower transportation costs. Thus, an improvement in travel quality may potentially attract new businesses, or aid in the retention of existing ones.

(E) The incentives for innovation in products, materials, or processes.

This regulation does not directly incentivize innovation of products, materials, or processes, as toll agencies expect to implement existing management and operation procedures. Indirectly, 6c transponder competitors may become motivated to improve existing transponder technology that is cheaper to produce in hopes of creating a superior product that leads to 6C becoming obsolete.

(F) The benefits of the regulations, including, but not limited to, benefits to the health, safety, and welfare of California residents, worker safety, and the state's environment and quality of life, among any other benefits identified by the agency.

This regulation benefits California residents by: 1) increasing the financial investment from procurement savings to improve the state's transportation network, 2) decreasing the amount of lithium ion battery disposal as 6C transponders do not require a battery to function,

and 3) reducing packaging material consumption and improving courier service load capacity because of smaller packaging requirements.

The following are Department of Finance comments on the Standardized Regulatory Impact Assessment concerning three areas where more analysis was requested, and the California Department of Transportation's (Caltrans) responses.

DOF Comment 1. "First, the inclusion of a "no change" alternative is not informative for the public. A separate alternative that provided a genuine contract to the proposed regulations should have been used instead. One possibility could be the examination of other technologies that can generate similar or higher savings for toll agencies."

Caltrans Response to DOF Comment 1. The "no change" alternative was intended to serve as a baseline to compare against the change to the 6C technology. A "no build" alternative is a common practice in the project development process at Caltrans, and this was in keeping with that practice. As for the examination of other technologies, there are three other electronic toll collection protocols used in the United States. Of those three protocols, two are considered "open standard," the 6C protocol, and the Time-Division Multi-Plexing (TDM) protocol, which is used for the EZPass system within the northeastern United States. State law requires that the protocol used in California be an open standard, therefore, only these two options were available for consideration. The toll agencies did consider the TDM protocol, but found that the TDM transponders are only slightly less expensive than the Title 21 transponders, whereas 6C transponders are significantly less expensive than Title 21 transponders. Furthermore, there are only two manufacturers of TDM transponders, whereas there are currently four manufactures of 6C transponders. The greater number of manufacturers is expected to help further reduce purchasing costs due to increased competition. Since cost savings is the primary factor for moving away from the Title 21 protocol, the lower cost savings with the TDM protocol indicates that it is not a feasible alternative. Information on the costs of the two protocols may be found on pages 7 and 9 of the "California Toll Operators Committee (CTOC) Plan for Transitioning from the Title 21 protocol to the 6C protocol," which is available for review on Caltrans' Title 21 support web page at: http://www.dot.ca.gov/trafficops/tech/title21.html.

DOF Comment 2. "[It] is surprising that despite the improvements in transport efficiency (less congestion and better roads), the transport sector is the only sector that consistently reports a yearly $1 million decrease in output. As reported, the estimated output decrease of the transport sector is not taking into account the positive effect on messenger demand of the improvement of transport efficiency. The benefits would thus be understated."

Caltrans Response to DOF Comment 2. The results listed in the table, "T21 – 6CAnnual Differences for California Industry Outputs" (located on page 10 of the SRIA), are summary of direct, indirect, and induced output expectations for industries due to changes in the way the State's toll operators reinvest their monetary resources into the transportation network. Any

travel (transport) efficiency gains are excluded from this analysis. Financially, a net loss in revenue for the shipping industry (NAICS 492) is expected because toll agencies would pay couriers $2.00 less per unit to distribute 6C transponders even though the demand for courier service would increase. This is due to less packaging and postage required to ship the new transponder technology. Thus, an annual loss of revenue was inputted into the Regional Economic Models, Incorporated (REMI) economic analysis model for this sector. Solely looking from a financial aspect, the REMI model predicted that the loss in revenue for the shipping industry would negatively impact the output for transportation and warehousing industry (NAICS 48-49). As mentioned in the "Benefits to California Industries" section of the SRIA (located on page 4), accounting for travel (transport) efficiency gains is beyond the scope of this analysis due to the lack of research and ability to quantify this likely positive outcome.

The reinvestment into the transportation network would likely have some positive benefits that are not captured in the reported industry output table. Improvements to the transportation infrastructure or vehicle load capacity for couriers could yield efficiency gains through better travel speeds, throughput, or trip efficiency. Thus, these unaccounted benefits could reduce the negative output that is predicted for the transportation and warehousing industry by REMI. However, these unaccounted gains may not be significant enough to offset the overall negative output for these industries due to a loss in revenue for the shipping industry.

DOF comment 3. "[The] SRIA does not discuss whether the adoption of this technology posed privacy and security concerns to its users. It is possible that unauthorized individuals could read the tags' information without the owner's knowledge or consent, resulting in the possibility of people being tracked without their knowledge or consent. There are separate regulations addressing privacy, and this is an issue with existing technology as well. However, the expected large-scale adoption of transponders facilitated by the new technology, greater privacy risks are an impact that should be discussed in the SRIA."

Caltrans Response to DOF Comment 3. While the number of transponders issued is expected to increase due to the transition to 6C protocol, Caltrans does not believe this will pose additional privacy or security issues. The 6C protocol has been used for many years in several states without any privacy or security issues. No personal information is stored on the transponder. The information shared by reader and transponder communications is a string of numbers that identify the toll agency that issued the transponder, and those numbers do not correlate to any individual. A 6C transponder may have the capability of having information written to it, but this information would only show the last location where the tag was read, and it is overwritten every time the transponder passes underneath a reader. Therefore, an unauthorized person cannot tie the information to the transponder's owner for tracking purposes. The information exchange covered by this regulation for the toll agencies is in compliance with California Streets and Highway Code section 31490, which defines personally identifiable information and the requirements that toll agencies must follow when sharing information. The proposed regulation emphasizes the need for toll agencies to comply with this statute. If any privacy concerns are

raised during the rulemaking process, including the public comment period and hearing, Caltrans will address them accordingly.

CONSIDERATION OF ALTERNATIVES

In accordance with Government Code, Section 11346.5 subdivision (a)(13), the Department must determine that no reasonable alternative it considered or that has otherwise been identified and brought to the attention of the Department would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

The Department invites interested persons to present statements or arguments with respect to alternatives to the proposed regulatory action during the written comment period.

AVAILABILITY OF STATEMENT OF REASONS AND TEXT OF PROPOSED REGULATIONS

The Department will have the entire rulemaking file available for inspection and copying throughout the rulemaking process at its office at the above address during regular business hours. As of the date this notice is published in the Notice Register, the rulemaking file consists of this notice, the proposed text of the regulations, and the initial statement of reasons, which includes the Standardized Regulatory Impact Assessment. Other related documents are also available. Copies may be obtained by contacting the Department of Transportation, Traffic Operations. Attention: Steve Hancock, 1120 N Street, MS-36, Sacramento, California 95814.

AVAILABILITY OF CHANGED OR MODIFIED TEXT

After considering all timely and relevant comments received, the Department may adopt the proposed regulations substantially as described in this notice. If the Department makes modifications that are sufficiently related to the originally proposed text, it will make the modified text (with the changes clearly indicated) available to the public for at least 15 days before the Department adopts the regulations as revised. Please send requests for copies of any modified regulations to the Department of Transportation, Traffic Operations. Attention: Steve Hancock, 1120 N Street, MS-36, Sacramento, California 95814. The Department will accept written comments on the modified regulations for 15 days after the date on which they are made available.

AVAILABILITY OF THE FINAL STATEMENT OF REASONS

Upon its completion, copies of the Final Statement of Reasons may be obtained by contacting the Department of Transportation, Traffic Operations. Attention: Steve Hancock, 1120 N Street, MS-36, Sacramento, California 95814

AVAILABILITY OF DOCUMENTS ON THE INTERNET

Copies of the Notice of Proposed Action, the Initial Statement of Reasons, which includes the Standardized Regulatory Impact Assessment, and the text of the proposed regulations can be accessed through http://www.dot.ca.gov/trafficops/tech/title21.html. Other related documents are also available at that website.